



## ABSTRACT OF THE DISCLOSURE

A two-layered fenestrated vascular graft is provided for repair of diseased, damaged or aneurismal blood vessels. The fenestrated vascular graft is configured to be delivered transluminally and implanted within the lumen of a native blood vessel using catheter-based minimally-invasive surgical techniques. The vascular graft is fenestrated or perforated to facilitate making a fluid connection or anastomosis with one or more of the sidebranches of the vessel into which it is implanted. Methods are described for implanting the vascular graft into a patient's aorta for repairing thoracic or abdominal aortic aneurysms and for making a fluid connection or anastomosis with the tributary vessels or sidebranches of the aorta, such as the renal, hepatic and mesenteric arteries. A fenestrated endovascular graft kit is disclosed containing a graft, a graft delivery catheter and a guidewire.